Alabama Science

Grade 4

Energy

Speed and Energy

Cause and Effect

1 Use evidence to explain the relationship between the speed of an object and its energy. 4.1

Transference of Energy

Patterns

2 Plan and carry out investigations to answer questions regarding changes in energy when objects collide, and predict reasonable outcomes based on observed patterns. 4.2

Transference of Energy

Energy and Matter

3 Plan and carry out investigations to provide evidence that energy is transferred by sound, light, heat, and electric currents. 4.3

- a Construct an explanation using evidence to support the claim that heat can be produced in many ways. 4.3.A
- b Construct an explanation with evidence supporting the claim that different objects can absorb, reflect, and/or conduct energy. 4.3.B

4 Design, construct, and test a device that changes energy from one form to another. 4.4

Waves and Their Applications in Technologies for Information Transfer

Wave Properties

Patterns

5 Develop and use models to describe amplitude and wavelength patterns and how waves can cause objects to move. 4.5

Information Transfer

Patterns

6 Construct an explanation of how light, sound, and digitized information are transferred by waves. 4.6

	Wave Properties	
	Cause and Effect	
	7 Develop a model to demonstrate that light reflecting from objects and entering the eyes allow objects to be seen. 4.7	
From Molecules to Organisms: Structures and Processes	**Internal and External Structures**	
	Structure and Function	
	8 Make a claim, using evidence, that the functions of both internal and external structures of plants and animals (including humans) support growth, survival, and behavior. 4.8	
	Information Processing	
	Systems and System Models	
	9 Carry out investigations to support a claim that different animals receive information through their senses, process that information, and respond in various ways. 4.9	
Earth's Systems	**Water**	
	Systems and System Models	
	10 Develop and use a model to describe how water moves through Earth's systems by the processes of evaporation, condensation, and precipitation. 4.10	
	Changes Over Time	
	Stability and Change	
	11 Construct explanations of Earth's changes over time through slow and rapid processes, citing evidence found in rock formations and fossils in rock layers. 4.11	
	Changes Over Time	
	Scale, Proportion, and Quantity	
	12 Plan and carry out investigations to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, and vegetation, investigating a single form of weathering or erosion at a time. 4.12	
	Physical Features	
	Patterns	
	13 Analyze and interpret data from maps to describe patterns of Earth's features on land and in the ocean. 4.13	

Earth and Human Activity

Natural Resources

Cause and Effect

14 Gather information to describe how the use of energy derived from renewable and nonrenewable resources affects the environment. 4.14

Natural Hazard Solutions

Cause and Effect

15 Design, test, and evaluate a solution that will protect humans from the effects of natural Earth processes. 4.15